(S//SI//REL) Alvin, Simon, and... Al Qaeda? Finding Modified Voice in SIGINT Traffic
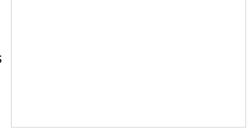
FROM: ▮▮▮▮▮▮▮▮
Researcher, Human Language Technology Research Office (R64)
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(TS//SI//REL) Voice modification isn't only employed by the makers of Alvin and the Chipmunks; it is also being used by SIGINT targets in Yemen, Afghanistan, Iraq, and elsewhere. In the last several months, multiple targets used voice modification technology to distort their voices, most likely to avoid identification by intelligence agencies.

(TS//SI//REL) In late 2009, CT analysts found two audio cuts associated with Al Qaeda in the Arabian Peninsula (AQAP) in Yemen that contained voice that had clearly been modified (the talker sounded like a character from Alvin and the Chipmunks). R6 and CES (S31) were asked to help recover the original voice so that the talkers could be identified. Within two weeks, we had created a profile of the modification technique employed by the AQAP handset. CES has deployed a capability (now available at "go saas") to undo the modification .

(TS//SI//REL) Next we asked the question: is it possible to automatically discover modified voice in SIGINT traffic? If so, then this could become a powerful tool for target discovery. In the case of AQAP, this is exactly the capability that was required: after the December 25 bombing attempt in Detroit , many AQAP selectors in Yemen went quiet. Some of these targets had used voice modification in late 2009; were they still employing voice modification but on different phone numbers?

(TS//SI//REL) In response to this requirement, R64 developed a software package called HLT Lite to automatically discover modified voice. HLT Lite makes use of three core human language technology (HLT) algorithms: speech activity detection , anomaly detection , and automatic speaker recognition . HLT Lite was deployed to the Special Collection Service (SCS) site in Yemen on 9 March, 2010 to search for modified voice in JUGGERNAUT data. After being operational for only 30 minutes, HLT Lite discovered a cut containing modified voice. Since then, *HLT Lite has scanned over 1,000,000 audio cuts and discovered at least 80 confirmed examples of modified voice.* Four phone numbers have been tasked and many others remain to be analyzed.

(TS//SI//REL) Modified voice is not restricted to AQAP in Yemen. We used HLT Lite to search 500,000 NUCLEON cuts and discovered 76 examples of modified voice across several Product Lines, including Afghanistan/Taliban, Sunni Extremism, Lashkar-e Tayyiba, and Southwest Asia Narcotics. So if you hear SIGINT traffic that sounds distorted, it may not be garbled or corrupted . . . it may actually be modified! You can listen to examples of modified voice here .

(TS//SI//REL) Does this article sound familiar? Long-time SID *today* readers will remember the March 2007 article " Alert: Voice Masking Is Discovered in SIGINT ."

(S//SI//REL) Note: The above image is a spectrogram of modified voice from a cut associated with AQAP in Yemen. Have comments on this topic? Post them on the SIDtoday Blog .